

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Se-Lee Chang et al.                      Art Unit : 1711  
Serial No. : 09/690,271                              Examiner : Susan W. Berman  
Filed : October 17, 2000  
Title : RESIN COMPOSITION FOR MANUFACTURING OPTICAL FIBER RIBBON  
AND METHOD FOR PREPARING RESIN FOR MANUFACTURING OPTICAL  
FIBER RIBBON USING THE SAME

Commissioner for Patents  
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**DECLARATION BY SE LEE CHANG UNDER 37 C.F.R. 1.132**

I, Se Lee Chang, hereby declare that:

1. I am a co-inventor of the subject matter described and claimed in the above-identified application, which relates to a resin composition for manufacturing optical fiber ribbon.

2. I have prepared a resin by the method described in EXAMPLE 8 of the application except that EBECRYL 4842, a polyether urethane acrylate oligomer disclosed in Duecker, US Patent 6,122,428 was used, instead of the oligomers prepared in Examples 1-7 of the application. The resin thus obtained is called "Duecker Resin" below.

I or others have performed a friction force test and a surface tension test on 7 resins of this invention and Duecker Resin according to the methods used in TEST EXAMPLE 1 of the application. The results are shown in Table 1 below:

Table 1. Friction force and surface tension

	Duecker Resin	Resin 1	Resin 2	Resin 3	Resin 4	Resin 5	Resin 6	Resin 7
Friction force ( $\times 10^{-3}$ kgf)	278	240	208	155	230	200	210	235
Surface tension (dyne/cm <sup>2</sup> )	30	27	25	21	26	23	25	26

In Table 1, Resins 1-7 refer to the resins prepared in the same manner as Duecker Resin except that the oligomers prepared in Examples 1-7 of the application were used instead of EBECRYL 4842. As shown in this table, Duecker Resin exhibited a friction force of  $278 \times 10^3$  kgf and a surface tension of  $30 \text{ dyne/cm}^2$ , and Resins 1-7 had smaller friction forces, ranging from  $155$  to  $240 \times 10^3$  kgf, and smaller surface tensions, ranging from 21 to  $27 \text{ dyne/cm}^2$ .

I or others have also performed a tensile strength test on Resins 1-7 and Duecker Resin according to the method used in TEST EXAMPLE 2 of the application. The results are shown in Table 2 below:

Table 2. Tensile strength

	Duecker Resin	Resin 1	Resin 2	Resin 3	Resin 4	Resin 5	Resin 6	Resin 7
Tensile strength (kgf/mm <sup>2</sup> )	45	83	86	90	100	95	98	105

As shown in Table 2, Duecker Resin exhibited a tensile strength of  $45 \text{ kgf/mm}^2$ , and Resins 1-7 had remarkably higher tensile strengths, ranging from 83 to  $105 \text{ kgf/mm}^2$ .

I or others have further performed a shrinkage test on Resins 1-7 and Duecker Resin according to the method used in TEST EXAMPLE 3 of the application. The results are shown in Table 3 below:

Table 3. Shrinkage

	Duecker Resin	Resin 1	Resin 2	Resin 3	Resin 4	Resin 5	Resin 6	Resin 7
Shrinkage (%)	8.0	6.8	7.0	7.2	7.2	6.8	7.0	7.2

As shown in Table 3, Duecker Resin exhibited a shrinkage of 8.0%, and Resins 1-7 had remarkably lower shrinkages, ranging from 6.8 to 7.2%.

3. I have prepared a resin by the method described in Example 8 of the application except that a 50:50 mixture of H-I-Hsi2111-I-M (a composite oligomer disclosed in Szum, US Patent 6,110,593) and urethane acrylate oligomer prepared in Comparative Example 1 of the application, in stead of the just-mentioned urethane acrylate oligomer was used. The resin thus obtained is called "Szum 1" below. I have also prepared another resin, "Szum 2," by the same method that a 90:10 mixture, instead of a 50:50 mixture, of H-I-Hsi2111-I-M and urethane acrylate oligomer was used.

I or others have compared the appearance and the aging property among Resins 1-7 (mentioned above), Szum 1, and Szum 2. The appearance was evaluated by macroscopic observation. The aging property was assessed based on phase separation of each resin in a beaker placed in a convection oven at 50°C. The results are shown in Table 4 below:

Table 4. Appearance test and aging test

	Szum 1	Szum 2	Resin 1	Resin 2	Resin 3	Resin 4	Resin 5	Resin 6	Resin 7
Appearance	Haze	Haze	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Aging (at 50°C)	Separated in 3 hours	Separated in 3 hours	Not separated after 48 hours						

As shown in Table 4, Szum 1 and Szum 2 had a hazy appearance and exhibited separation after 3 hours. By contrast, Resins 1-7 had a clear appearance and did not exhibit separation after 48 hours.

4. All statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by

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fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully Submitted,

Date: July 25, 2003.

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